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# COMPAQ P1610 USER MANUAL

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## *User's Guide*

***Compaq P1610 Color Monitor***

Fourth Edition (December 1997)
Third Edition (September 1997)
Part Number 305706-004

**Compaq Computer Corporation**

# *book* 1

# ENGLISH

## Introduction

The Compaq P1610 Color Monitor is a high-resolution, wide screen display intended for use with high-end graphics controller boards capable of high definition television (HDTV) format. The wide screen is recommended for video animation; advanced graphics user interfaces (GUIs); high performance graphics and digital video applications such as computer-aided design, computer-aided engineering, desktop publishing and document image processing; and Windows 95 and Windows NT applications.

## Product Features

The monitor features include the following:

- 24-inch (22.5-inch/57.15 cm viewable) aperture grille CRT for superior brightness and uniformity.
- On-screen display (OSD) for adjusting the monitor screen in six different languages: English, Dutch, French, German, Spanish, and Japanese.
- Plug and play capability if supported by your system.
- AssetControl that provides detailed inventory information including manufacturer, model, and serial number of Compaq monitors.
- Multisync capabilities for compatibility with a wide range of computers and graphics adapters.
- Ten preset and 15 user-defined display resolutions with a maximum resolution of 1920 × 1200 at 76 Hz.
- Signal cable connectors on the rear panel for connecting two computers; one for the standard 15-pin signal cable, and one for a set of five BNC connectors.
- Energy Saver feature
- Compliant with the following regulatory specifications:
  - EPA Energy Star
  - European Union CE Directives
  - Swedish MPR II 1990
  - Swedish TCO 1995

### Graphics Adapter

To be able to view the higher resolutions this monitor displays, a special graphics adapter for your computer is required. It must be capable of resolutions at 1920 × 1035 to 1920 × 1200 with varying horizontal and vertical frequencies. For information on where to obtain a graphics adapter that supports these resolutions, refer to your Compaq authorized reseller or dealer.

## Graphics Driver

This monitor's higher resolutions may also require a special graphics driver that is compatible with your computer's graphics adapter. If your Compaq computer has a graphics card installed that supports the higher resolutions, 1920 × 1035 to 1920 × 1200, these resolutions will display on this monitor. If your computer has the proper hardware, but lacks the driver software, you can access the Compaq World Wide Web site and download the latest drivers. If your Compaq computer hardware does not support the higher resolutions, contact your Compaq authorized dealer or reseller for information on upgrades. If you do not have a Compaq computer, contact the dealer that represents your computer's brand name for this information.

Compaq has created a Universal Driver Manager (UDM) release that supports all Compaq QVision graphics controllers and most graphics controllers found on Compaq Deskpro products. The UDM eases graphics driver deployment across all Compaq Deskpro platforms ensuring cross-compatibility and backward-compatibility. The resulting solution enables customers to manage and control ongoing software maintenance costs. The UDM is available on the *Support Software* CD for Compaq Desktop, Portable, and Workstation Products and the Compaq World Wide Web site (www.compaq.com).

✎ If the updated Universal Driver Manager that supports the Compaq P1610 Monitor is not available on the Web site, contact your authorized Compaq dealer or reseller.

- You can order the *Support Software CD* for Compaq Desktop, Portable, and Workstation Products. This compact disc contains the latest device drivers, utilities, and flashable ROM images needed to run MS-DOS, Microsoft Windows 3.1, Windows 95, Windows NT Workstation, and IBM OS/2 on your Compaq commercial Desktop, Portable, or Workstation product.
- You can download the Support software from the Compaq World Wide Web site (www.compaq.com).
- You can purchase backup diskettes.

If you choose to purchase the *Support Software CD*, you have two options:

- You can purchase a single CD-ROM that gives you one-time access to the latest support software (North America only, Compaq part number 272505-001).
- You can purchase a yearly subscription that delivers up to 12 monthly CD-ROMs (Compaq part number 183426-xxx).

The annual subscription ensures your continuous access to the latest developments.

For help and service outside of the U.S. and Canada or to order the CD or backup diskettes, contact your Compaq authorized reseller, dealer, or service provider.

## Setting Up the Monitor

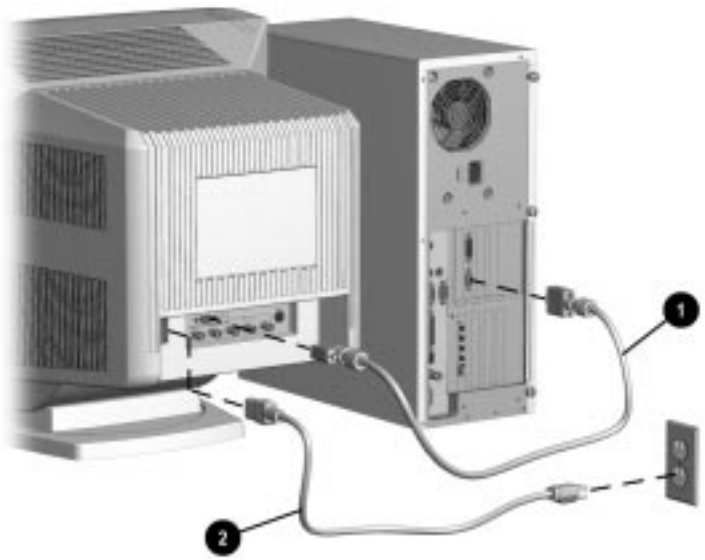
To set up the monitor, ensure that the power is turned off to the monitor, computer system, and other attached devices, then follow these steps:

1. Place the monitor in a convenient, well-ventilated location near, but not on top of, your computer.

**WARNING:** To reduce the risk of possible injury, do not attempt to lift the monitor by yourself. This monitor weighs approximately 90 pounds and is not intended to be placed on top of a computer. Place the monitor directly on a desktop or other work surface.

2. Connect one end of the standard monitor signal cable ❶ to the monitor, and the other end to the 15-pin connector on the rear panel of the computer and tighten the screws.

Be sure the signal cable aligns with the 15-pin connector. Do not force the cable onto the connector or you may damage the signal cable.




3. Connect the monitor power cord ❷ to the rear panel of the monitor, then plug the other end into an electrical outlet that is easily accessible and close to the monitor.

**WARNING:** To reduce the risk of electric shock or damage to your equipment, do not disable the power cord grounding feature. This equipment is designed to be connected to a grounded (earthed) power outlet that is easily accessible to the operator. The grounding plug is an important safety feature.

**CAUTION:** Be sure that the power outlet you plug your power cord into is easily accessible and located as close to the monitor as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the power outlet.

## Signal Warning Function

If something is wrong with the input signal, one of the following messages will display for 30 seconds when the monitor is turned on and off, or when the computer select switch is operated (refer to page 1-9 for an explanation of the computer select switch):

- Please check the signal (indicates the cable is not connected)
  Input: 1 (shows computer select switch setting)
  FH:84.4kHz (indicates the horizontal sync signal)
  FV: - Hz (indicates no vertical sync signal)
- Out of Scan Range (indicates the input signal is not supported by the monitor's specifications)

## Using BNC Connectors

A signal cable with BNC connectors may be used in place of or in addition to the 15-pin signal cable. To connect two computers to the monitor, a BNC connector may be used together with the 15-pin signal cable. If you have separately purchased a signal cable with BNC connectors, use the following instructions to connect the signal cable to the monitor.

AssetControl is not supported by the monitor when BNC connectors are used.

1. Connect the five BNC connectors to the monitor. Push in and twist the connectors clockwise until they are locked into place. The color of the wires may vary, so refer to the manufacturer's instructions included with the BNC connectors. Usually, the connectors are color coded from left to right in the following order:

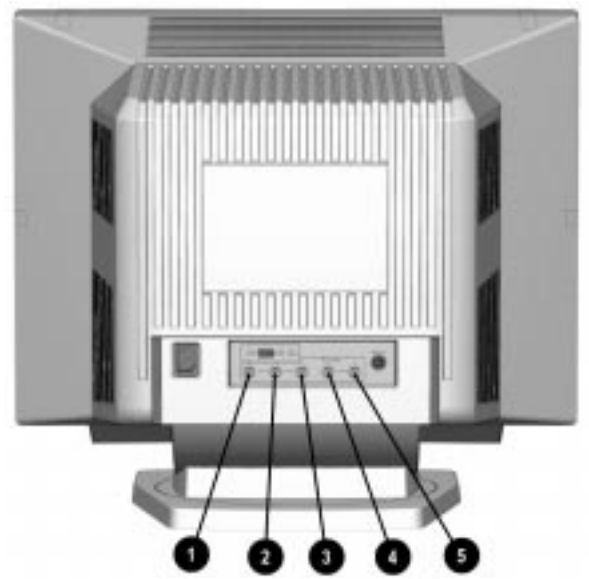
❶ Red (R) for the red video connector

❷ Green (G) for the green video connector

❸ Blue (B) for the blue video connector

❹ White for horizontal sync (H)

❺ Black for vertical sync (V)




2. Connect the other end of the signal cable to the 15-pin graphics connector on the back of your computer.
3. Connect the power cord as previously illustrated.

**WARNING:** To reduce the risk of electric shock or damage to your equipment, do not disable the power cord grounding feature. This equipment is designed to be connected to a grounded (earthed) power outlet that is easily accessible to the operator. The grounding plug is an important safety feature.

**CAUTION:** Be sure that the power outlet you plug your power cord into is easily accessible and located as close to the monitor as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the power outlet.

## Operating the Monitor

**Front Control Panel**

| | Icon | Control | Function |
|---|---|---|---|
| ❶ | ⇦1 ⇦2 | Computer Signal Switch | Selects which computer signal to input when two computers are connected to the monitor at the same time. |
| ❷ | →•← | Reset Button | Resets operating on-screen display (OSD) adjustments to factory preset levels. |
| ❸ | | Option Button | Displays adjustments to:<br>1. Select an OSD language.<br>2. Move the OSD menu around on the screen.<br>3. Select between a normal or expert OSD menu.<br>4. Lock and unlock or disable all the buttons on the front panel except the power switch, option button, and the computer signal switch. |
| ❹ | | Color Button | Displays adjustments for screen color temperature. |
| ❺ | | Screen Button | Displays adjustments for vertical and horizontal convergence, moire, landing, and degauss. |
| ❻ | | Geometry Button | Displays adjustments for picture rotation and pincushion. |

*Continued*

**Front Control Panel** ***(Continued)***

| | Icon | Control | Function |
|---|---|---|---|
| ❼ | | Size Button | Displays adjustments for picture sizing. |
| ❽ | | Center Button | Displays adjustments for picture position. |
| ❾ | | Brightness Buttons | 1. Adjusts Brightness.<br>2. The –/+ ( ) buttons also make adjustments to OSD screens. |
| ❿ | | Contrast Buttons | 1. Adjusts Contrast.<br>2. The –/+ ( ) buttons also make adjustments to OSD screens. |
| ⓫ | | Power Saving LED | 1. Green indicates monitor is turned on.<br>2. Yellow indicates suspend mode.<br>3. Amber indicates sleep mode. |
| ⓬ | | Power Switch | Turns the monitor on and off. |

## Computer Select Signal

This monitor has two signal connectors on the rear panel which make it capable of connecting two computers to the monitor at the same time. When two computers are connected to the monitor and both are turned on, select the computer signal you want to use by doing the following:

- On the front control panel, set the computer select switch ❶ to 1 for the computer connected with a 15-pin connector.
- Set the computer select switch to 2 for the computer connected with five BNC connectors.

If only one computer is connected or turned on, set the computer select switch to the center position. The input signal is automatically determined.

## Making Adjustments Using the OSD

To make a selection from the on-screen display:

1. Press the button of your choice on the front control panel.
2. Select a function from the menu displayed on screen by pressing the Brightness icon –/+ ( ⬆ ⬇ ) buttons on the front panel. The selection is highlighted in yellow. The Brightness buttons select or adjust vertically.
3. Make adjustments to the highlighted selection or select the next item by pressing the Contrast icon –/+ ( ⬅ ➡ ) buttons on the front panel. The selection is highlighted in yellow. The Contrast buttons select or adjust horizontally.
4. When you are finished making adjustments, turn off the OSD by pressing the same front control panel button again, or wait about 30 seconds for the menu to automatically disappear. Your changes will be saved using either method.

To reset, press the Reset button on the front control panel while the OSD is on. The selected parameter resets.

## Option Button Functions

### Selecting a Language

The on-screen display menus can be viewed in one of six available languages. To select a language in the Option screen setting:

1. Press the Option button to display the Option OSD menu.
2. Select **Language** by pressing the –/+ buttons under the Brightness icon on the front panel.
3. Select a language from the Language menu by pressing the –/+ buttons under the Contrast icon on the front panel.
4. Press the Option button again to turn off the OSD, or wait about 30 seconds for the menu to automatically disappear. Your changes will be saved using either method.

*Selecting a Language from the On-Screen Display*

## Repositioning the OSD Menu

To change the position of the OSD on the monitor screen:

1. Press the Option button to display the Option OSD menu.
2. Select OSD Position by pressing the Brightness –/+ buttons on the front panel.
3. Move the OSD to the desired position by pressing the Contrast –/+ buttons on the front panel.
4. Press the Option button again to turn off the OSD, or wait about 30 seconds for the menu to automatically disappear. Your changes will be saved using either method.

## Control Lock Function

The control lock function disables all the buttons on the front panel except the power switch, the option button, and the input select switch. To disable or enable the buttons on the front panel, complete the following:

1. Press the Option button to display the Option OSD menu.
2. Press the Brightness –/+ buttons to select the option Lock.
3. Press the Contrast –/+ buttons to select the action **Lock.**

Once **Lock** is selected, any function selected other than the Power switch, the Option button, or the Input select switch will be inactive and the lock icon will appear on the screen.

To cancel the control lock, repeat the previous procedure and press the Contrast button (←) to select **Unlock.**

### Selecting Normal or Expert OSD Mode

Screen adjustments can be selected using either Normal or Expert OSD modes. Normal mode offers basic control over screen adjustments, while Expert mode provides additional fine-tuning to the monitor screen.

To set the monitor screen to your preferred choice:

1. Press the Option button to display the Option OSD.
2. Select the OSD menu.
3. Press the Contrast buttons to select Normal or Expert mode.

✎ Functions appearing under the Option OSD menu are not controlled by either Normal or Expert mode. The procedures for adjusting these functions remain the same as stated on previous pages even while operating under Normal or Expert modes. These functions are: Language, Repositioning the OSD Menu, and Control Lock.

## Using Normal Mode

Use the instructions on page 1-9 under the section "Making Adjustments Using the OSD" to adjust the following menu items.

### Adjusting Color Temperature

Press the Color button to display the Color OSD menu:

1. Press the Contrast –/+ buttons to select a color temperature.
2. Press the Brightness –/+ buttons to select **Variable.**
3. Press the Contrast –/+ buttons to adjust the color temperature.

### Screen OSD

Press the Screen button to display the Screen OSD menu; then press the Brightness –/+ buttons to select one of the following functions:

- Horizontal Convergence: Press the Contrast –/+ buttons to adjust left and right positions of the red or blue shadows to make them disappear.
- Vertical Convergence: Press the Contrast –/+ buttons to adjust up and down positions of the red or blue shadows to make them disappear.
- Moiré: To cancel Moiré, press the Contrast –/+ buttons to select ON.
- Moiré Adj.: If the picture becomes unclear when you cancel Moiré:
    1. Press the Brightness buttons to select MOIRE ADJ.
    2. Press the Contrast buttons to adjust beginning at 0 until the moiré is at a minimum.

*On-Screen OSD Menu in Normal Mode*

- Landing: Improves color uniformity and corner darkness of the screen. To adjust the color uniformity, follow these instructions:
    1. Press the Brightness –/+ buttons to select Degauss.
    2. Press the Contrast + button to degauss the screen.
    3. Display an entirely white picture for more than 20 minutes before making the adjustment.
    4. After 20 minutes, repeat steps 1 and 2 above, then complete the following.
    5. Press the Brightness –/+ buttons to select Landing.
    6. Press the Contrast + button to display the Landing menu.
    7. Press the Brightness buttons to make a selection.
    8. Press the Contrast buttons to make the adjustment.

  To return to the Screen OSD, select Screen Menu →.
- Degauss: Corrects color impurities due to influence from the earth's magnetism. The monitor screen is automatically degaussed when the power is turned on. To degauss the screen manually, complete the following:
    1. Press the Brightness buttons to select Degauss.
    2. Press the Contrast (→) button to degauss the screen.

### Geometry OSD

Press the Geometry button and select one of the following:

- To rotate the screen image, press the Brightness buttons:
    1. Press (↓) to rotate counterclockwise.
    2. Press (↑) to rotate clockwise.
- To adjust the pincushion settings, press the Contrast buttons to straighten the screen edges.

Press the Geometry OSD button to turn off the OSD, or wait 10 seconds for it to automatically disappear.

### Size OSD

Press the Size button and select one of the following:

- To vertically adjust the screen size, press the Brightness buttons:
  1. Press ↓ to decrease the vertical size.
  2. Press ↑ to increase the vertical size.
- To horizontally adjust the screen size, press the Contrast buttons:
  3. Press ← to decrease the horizontal size.
  4. Press → to increase the horizontal size.

Press the Size button to turn off the OSD, or wait 10 seconds for it to automatically disappear.

### Center OSD

Press the Center button, and select one of the following from the Center OSD menu:

- To vertically center the screen, press the Brightness buttons:
  1. Press ↓ to move down.
  2. Press ↑ to move up.
- To horizontally center the screen, press the Contrast buttons:
  3. Press ← to move left.
  4. Press → to move right.

Press the Center button to turn off the OSD, or wait 10 seconds for it to automatically disappear.

### Brightness

Press the Brightness button, then complete the following:

- Press Brightness button ↓ to decrease brightness.
- Press Brightness button ↑ to increase brightness.

To turn off the OSD, wait 3 seconds for it to automatically disappear.

### Contrast

Press the Contrast button, then complete the following:

- Press Contrast button ← to decrease the contrast.
- Press Contrast button → to increase the contrast.

To turn off the OSD, wait 3 seconds for it to automatically disappear.

### Using Expert Mode

Expert mode allows adjustments to be made to the OSD in greater detail. To select Expert mode:

- Press the Option button to display the Option OSD.
- Press the Brightness –/+ buttons to select the OSD menu.
- Press the Contrast –/+ buttons and select Expert.

To turn off the OSD, press the Option button again.

### Adjusting Color Temperature

Press the Color button to display the Color OSD.

- Press the Contrast –/+ buttons to select the color temperature to adjust.
- Press the Brightness –/+ buttons to select Variable.
- Press the Contrast –/+ buttons to adjust the color temperature.
  - R Bias/G Bias/B Bias adjust the black level of each signal.
  - R Gain/G Gain/B Gain adjust the white level of each signal.

The symbol "++" will appear to the right of the adjusted color temperature. The OSD automatically disappears after 30 seconds, or turn it off by pressing the Color OSD button again.

To reset all parameters of a particular color temperature:

- Select the color temperature as in step 1 on the previous page, and press the reset button.
- The "++" appearing to the right of the adjusted color temperature disappears, and the parameters are reset.

To reset a particular parameter of a particular color temperature:

- Select the parameter as selected in step 2 above, then press the reset button.
- The selected parameter is reset.

### Screen OSD

Press the Screen button to display the Screen OSD, then complete the following:

1. Press the Brightness –/+ buttons to select a parameter.
2. Press the Contrast –/+ buttons to adjust the parameter:
    - H Convergence/V Convergence: Adjusts horizontal and vertical convergence.
    - V Conv Top/V Conv Bot: Adjusts the vertical convergence at the top and bottom of the screen.
    - H Focus: Adjusts the horizontal focusing.
    - Cancel Moiré: Cancels Moiré when "ON" is selected.
    - Moiré Adj: Reduces picture fuzziness caused by canceling Moiré. Beginning at 0, adjust until the moiré is at a minimum.
    - Landing: Improves color uniformity and lightens the darkness in the corner of the screen.
    - Degauss: Corrects color impurities due to the influence of the earth's magnetism.

*Screen OSD Menu in Expert Mode*

## Brightness/Contrast

Press the Brightness button or the Contrast button to display the Brightness/Contrast OSD, then complete the following:

1. Press the Brightness –/+ buttons to select **Preset.**
2. Press the Contrast –/+ buttons to select a preset number.
   - ❑ Press the Brightness –/+ buttons to adjust picture brightness.
   - ❑ Press the Contrast –/+ buttons to adjust picture contrast.

To turn off the OSD and save changes, wait 3 seconds for the OSD to automatically disappear.

To reset to the selected preset number, press the Reset button while the OSD is still on.

### Geometry OSD

Press the Geometry button to display the Geometry OSD, then complete the following:

1. Press the Brightness –/+ buttons to select a parameter.
2. Press the Contrast –/+ buttons to adjust the parameter:
    - ❏ H Pincushion/H Pin Bal: Corrects distortion at picture edges.
    - ❏ H Keystone: Corrects the size difference at top and bottom of picture.
    - ❏ H Key Bal: Corrects the picture imbalance at the top and bottom.
    - ❏ Rotation: Corrects picture rotation.
    - ❏ S Pincushion/S Pin Bal/C Bow: Corrects wavy distortion at picture edges.
    - ❏ Flare Top/Flare Bot: Corrects flare distortion at the top and bottom of picture.
    - ❏ V Linearity/V Lin Bal: Corrects vertical linearity and vertical linearity balance.

To turn off the OSD, press the Geometry button again, or wait 30 seconds for the OSD to disappear, automatically saving any changes.

### Center/Size OSD

Press the Center button or the Size button to display the Center/Size OSD, then complete the following:

1. Press the Brightness -/+ buttons to select a parameter.
2. Press the Contrast -/+ buttons to adjust the parameter.
    - ❏ H Center: Adjusts the horizontal position of the picture.
    - ❏ V Center: Adjusts the vertical position of the picture.
    - ❏ H Size: Adjusts the horizontal size of the picture.
    - ❏ V Size: Adjusts the vertical size of the picture.

To turn off the OSD, press the Center or Size button again, or wait 30 seconds for the OSD to disappear, automatically saving any changes.

## Display Resolutions Default Settings

The resolution settings listed below are set as factory defaults. The lower resolutions are the most commonly used modes and are supported by most graphics controllers, while the higher resolution settings (1920 × xxxx) are newer and require a higher-end graphics controller capable of supporting them. When supported with a proper graphics controller, this monitor automatically recognizes these preset modes when they are requested by a software program and provides the user with a properly sized and centered display.

**Display Resolutions**

| Preset Modes | Resolutions |
|---|---|
| 1. Industry Standard | 640 × 480 at 31.5 kHz/60 Hz |
| 2. Industry Standard | 720 × 400 at 31.5 kHz/70 Hz |
| 3. VESA | 1024 × 768 at 68.7 kHz/85 Hz |
| 4. VESA | 1280 × 1024 at 80.0 kHz/75 Hz |
| 5. VESA | 1280 × 1024 at 91.1 kHz/85 Hz |
| 6. VESA | 1600 × 1200 at 93.8 kHz/75 Hz |
| 7. HDTV (Interlaced) | 1920 × 1035 at 33.8 kHz/60 Hz |
| 8. Wide format | 1920 × 1080 at 67.5 kHz/60 Hz |
| 9. Wide format | 1920 × 1080 at 84.4 kHz/72 Hz |
| 10. Wide format | 1920 × 1200 at 95 Khz/76 Hz |

### User Modes

The video controller signal may occasionally call for a mode that is not preset if:

- You are not using a compatible Compaq graphics adapter.
- You are not using a preset mode.

If this occurs, you may need to readjust the parameters of the monitor screen by using the on-screen display. User changes can be made to any or all of these modes and saved in memory. The monitor automatically stores the new setting, then automatically recognizes the new mode just as it does a preset mode. In addition to the 10 preset modes that can be changed and stored, there are 15 user modes that can be entered and stored. When the 15 user mode settings are exceeded, the newest setting will replace the setting closest to its own configuration.

To revert back to the factory default settings, select Reset from the Factory Reset menu in the on-screen display, and the factory default resolutions will replace the user changes made for the operating original display mode.

## Energy Saver Feature

The energy saver feature has three different modes of operation:

- Full power mode
- Suspend mode
- Sleep mode

By selecting settings in the computer's Energy Saver utility, you determine the length of inactivity before the monitor goes into suspend or sleep mode.

The following table describes the monitor energy saver levels available during the different modes of operation.

**Energy Saver Levels**

| Mode | Power Usage | Description |
|---|---|---|
| Full Power | Less than 200 watts | ON = Normal operation<br>Power LED is green. |
| Suspend | Less than 15 watts | Monitor screen is blanked. Power LED turns yellow. Full power mode returns quickly. |
| Sleep | Less than 8 watts | Monitor screen is blanked. Power LED turns amber. There is a brief warm-up period before returning to full power mode. |

Refer to your computer manual for instructions on setting energy saver features (sometimes referred to as power management features).

✎ The energy saver features for monitors only work when connected to computers that have energy saver features.

## Care and Maintenance

This section explains how to care for and maintain your Compaq monitor during normal everyday use.

Ir

To protect your monitor from overheating and other types of damage, follow these suggestions:

- Use only a power source and connection appropriate for this monitor, as indicated on the marking label/back plate.
- When you connect the monitor to an outlet or extension cord, be sure the total ampere rating of the products connected to the outlet does not exceed the current rating of the electrical outlet, and the total ampere rating of the products connected to the cord does not exceed the rating of the cord.
- Install the monitor near an outlet that you can easily reach. Disconnect the product by grasping the plug firmly and pulling it from the outlet. Never disconnect it by pulling the cord.
- Unplug the monitor from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.
- Slots and openings in the cabinet are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.
- Do not place plants on top of the monitor. Water or dirt from the plant may fall into the vents.
- Do not drop the monitor or place it on an unstable surface.
- Do not allow anything to rest on the power cord. Do not walk on the cord.

- Keep the monitor in a well-ventilated area, away from excessive light, heat, and moisture. Keep the monitor away from high capacity transformers, electric motors, and other strong magnetic fields.
- Do not open the monitor cabinet or attempt to service this product yourself. Adjust only those controls that are covered
  by the operating instructions. If the monitor is not operating properly or has been dropped or damaged, contact your Compaq authorized dealer, reseller, or service provider.

## Cleaning the Monitor

To clean the monitor, follow these steps:

1. Turn off the monitor and the computer.
2. Dust the monitor by wiping the screen and the cabinet with a soft, clean cloth.

If the screen requires additional cleaning, use any antistatic CRT screen cleaner.

**CAUTION:** Do not use benzene, thinner, ammonia or any volatile substance to clean the monitor or the screen. These chemicals may damage the cabinet finish and the screen.

## Shipping the Monitor

Keep the original packing box with its original packing material in a storage area. You may need it later if you move or ship your monitor.

## Adjusting Picture Quality

Allow the monitor to warm up for 30 minutes before performing the following procedures. The picture image stabilizes after a warm-up period.

✎ This monitor uses an aperture grille CRT for excellent screen performance. At times the shadows of two thin, horizontal damper wires may appear on the screen background. This is not a defect. The damper wires are functional in displaying a clear monitor picture.

### Optimizing Contrast

For best results, set your screen to a dark background (such as the DOS prompt) before adjusting the following settings:

1. Set the brightness and contrast controls to their lowest settings.
2. Increase brightness until the background portions of the screen are visible, then slowly reduce brightness until the background is just extinguished.
3. Adjust contrast control to your preference.

### Optimizing Focus

The default image size is preset at the factory. The Size and Position controls in the on-screen display can be used to increase the screen size beyond the default setting. However, expanding the screen image beyond the default settings may degrade the focus at the outer edge of the screen.

To enhance focus, use the lowest brightness level that gives satisfactory results in your viewing environment.

✎ Settings that maximize contrast may not offer optimum focus, and settings that maximize focus may not offer optimum contrast.

# *appendix*

# AGENCY REGULATORY NOTICES

## Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

### Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

### Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations.

### Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

### Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### German Ergonomics Notice

Compaq Computers, when tested with the Compaq 633 Series monitors, were evaluated and found compliant to the requirements of ZH 1/618 (German Safety Regulations for Display Work Places in the Office Sector) in the Text Mode (720 × 400) using MS-DOS Version 3.31 (or higher) and BASICA as published by Compaq Computer Corporation.

### EPA Energy Star Compliance

Monitors that are marked with the Energy Star Logo meet the requirements of the EPA Energy Star program. As an Energy Star Partner, Compaq Computer Corporation has determined that this product meets the Energy Star guidelines for energy efficiency. Specific details on using the Energy Saving features can be found in the energy saver or power management section of the computer manual.

## European Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European norms:

- EN55022 (CISPR 22) - Radio Frequency Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

## Japanese Notice

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

# SPECIFICATIONS

| Compaq P1610 Color Monitor | | |
|---|---|---|
| **Display** | 24-in aperture grille CRT | 60.96 cm |
| **Viewable Image Size (diagonal)** | 22.5-in | 57.15 cm |
| **Screen Treatment** | Antireflective/antistatic coating | |
| **Approximate Weight (Unpacked)** | 90 lb | 41 kg |
| **Maximum Dimensions** | | |
| Height | 19.7-in | 50.0 cm |
| Depth | 21.6-in | 54.8 cm |
| Width | 22.8-in | 58.0 cm |
| **Maximum Graphics Resolution** | 1920 × 1200 at 76 Hz Refresh Rate | |
| **Text Mode** | 720 × 400 | |
| **Aperture Grille Pitch** | 0.25 mm (center) | |
| **Horizontal Frequency** | 30 to 96 kHz | |
| **Vertical Frequency** | 48 to 160 Hz | |
| **Environmental Requirements Temperature** | | |
| Operating Temperature | 50 to 95°F | 10 to 35°C |
| Storage Temperature | -22 to 140°F | 0 to 60°C |
| **Humidity (Non-Condensing)** | | |
| Operating | 10 to 80% | |
| Non-Operating | 5 to 90% | |
| **Power Source** | 100 - 120 VAC, 50 - 60 Hz | |
| | 200 - 240 VAC, 50 - 60 Hz | |
| **Power Consumption** | < 200 watts | |
| **Input Terminal** | 15-pin D-type connector with cable | |
| | 5 BNC connectors (cable not included) | |

## Acceptable Signal Transmission Schemes

The following input sync information is for users who connect this monitor to a non-Compaq computer. You may need to provide your own cables or connectors to the computer. If you are a nontechnical user and need more information than is provided, contact a Compaq authorized dealer, reseller, or service provider.

Use the following signal transmission schemes when BNC connectors are connected to the monitor.

### Separate TTL Syncs, Separate Videos

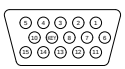
Connect all five—Red, Green, Blue, Black, and White—of the interface connections.

### Composite Sync, Separate Analog Videos

Connect the Red, Green, and Blue video inputs and the horizontal sync input.

*Sync Signal Definition:* Horizontal and vertical sync signals are both provided through the horizontal input.

## Connector Pin Assignments

| Signal Cable | | |
|---|---|---|
| **Connector** | **Pin** | **Signal** |
|  | 1 | Red Video |
| | 2 | Green Video |
| | 3 | Blue Video |
| | 4 | Open |
| | 5 | Return |
| | 6 | Red Gnd |
| | 7 | Green Gnd |
| | 8 | Blue Gnd |
| | 9 | DDC + 5V |
| | 10 | Sync Return |
| | 11 | Open |
| | 12* | Bidirectional Data (SDA) |
| | 13 | H-Sync/Composite Sync |
| | 14 | V-Sync |
| | 15* | Data Clock (SCL) |

* DDC Signals

### Color Display Values

| CIE* Chromaticity Coordinates | | |
|---|---|---|
| | X | Y |
| Red | 0.625 | 0.340 |
| Green | 0.280 | 0.595 |
| Blue | 0.155 | 0.070 |
| White Point (9300 K) | 0.283 (+/- .03) | 0.298 (+/- .03) |
| White Point (6500 K) | 0.313 (+/- .03) | 0.329 (+/- .03) |
| Gamma: 2.5 | | |

*Commission International d'Eclairage, 1931 Standard.

## Power Cord Set Requirements

The monitor power supply is provided with Automatic Line Switching (ALS). This feature allows the monitor to operate on input voltages between 100-120V or 200-240V.

The power cord set (flexible cord or wall plug) received with the monitor meets the requirements for use in the country where you purchased the equipment.

Power cord sets must meet the requirements of the country where you use the monitor. For more information on power cord set requirements, contact your Compaq authorized dealer, reseller or service provider.

### General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 9.75 feet (3.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the rear of the unit.

## Country-Specific Requirements

| Power Cord Set Requirements: By Country | | |
|---|---|---|
| **Country** | **Accredited Agency** | **Applicable Note Numbers** |
| Australia | EANSW | 1 |
| Austria | OVE | 1 |
| Belgium | CEBC | 1 |
| Canada | CSA | 2 |
| Denmark | DEMKO | 1 |
| Finland | FIMKO | 1 |
| France | UTE | 1 |
| Germany | VDE | 1 |
| Italy | IMQ | 1 |
| Japan | MITI | 3 |
| The Netherlands | KEMA | 1 |
| Norway | NEMKO | 1 |
| Sweden | SEMKO | 1 |
| Switzerland | SEV | 1 |
| United Kingdom | BSI | 1 |
| United States | UL | 2 |

### Notes:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 0.75 $mm^2$ conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75$mm^2$ conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

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